IN THE CLAIMS

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Claims 1 – 5; 7-14; and 16-19 are amended. Claims 6 and 15 have been cancelled.

Claims 20- 23 have been added.

Listing of Claims:

1. (Currently amended) A method of forming at least one nanometer-scale circuit ~~fabrication of electrical contacts for~~ comprising a molecular electronic transistor[[s]] and electrical contacts therefor, the method comprising the steps of:

wiring a three-terminal molecule ~~or an aggregate thereof~~ comprising a source terminal, a gate terminal, and a drain terminal to serve as a[[n]] molecular electronic transistor,

the electronic transistor comprising the molecule attached to a gate electrode, a source electrode, and a drain electrode,

wherein the source electrode and the drain electrode are fabricated from a first previously-determined metal and the gate electrode is fabricated from a second previously-determined metal[[,]] ;

functioning to allow for simultaneous attachment of the molecule[[s]] to the source electrode, drain electrode, and gate electrode in a previously-determined order[[,]] ; and ~~for the creation enhanced integrated circuits.~~

allowing the molecule to attach to the source electrode, the drain electrode, and the gate electrode in the previously-determined order, thereby forming the nanometer-scale circuit, wherein the circuit comprises a molecular electronic transistor and electrical contacts therefor.

2. (Currently amended) The method of ~~fabrication of electrical contacts for molecular electronic transistors as described in~~ claim 1, for forming at least one nanometer-scale circuit, wherein the method is utilized in conjunction with mixed-valence transistors.

3. (Currently amended) The method of ~~fabrication of electrical contacts for molecular electronic transistors as described in~~ claim 2, for forming at least one nanometer-scale circuit, wherein the method utilizes a chemical means.

4. (Currently amended) The method of ~~fabrication of electrical contacts for molecular electronic transistors as described in~~ claim 2, for forming at least one nanometer-scale circuit, wherein the method utilizes a photochemical means.

5. (Currently amended) The method of ~~fabrication of electrical contacts for molecular electronic transistors as described in~~ claim 2, for forming at least one nanometer-scale circuit, wherein the method utilizes an electrochemical means.

6. (Cancelled)

7. (Currently amended) The method of ~~fabrication of electrical contacts for molecular electronic transistors as described in~~ claim 1, for forming at least one nanometer-scale circuit, wherein the method is utilized in conjunction with the source electrode, the drain electrode, and the gate electrode existing in one plane.

8. (Currently amended) The method of ~~fabrication of electrical contacts for molecular electronic transistors as described in~~ claim 1, for forming at least one nanometer-scale circuit, wherein the method is utilized in conjunction with two electrodes in one plane, and a third electrode in plane perpendicular thereto.

9. (Currently amended) The method of ~~fabrication of electrical contacts for molecular electronic transistors as described in~~ claim 8, for forming at least one nanometer-scale circuit, wherein the method is utilized in conjunction with the source electrode and the drain electrode in one plane, and the gate electrode in a plane perpendicular thereto.

10. (Currently amended) The method of ~~fabrication of electrical contacts for molecular electronic transistors as described in~~ claim 9, for forming at least one nanometer-scale circuit, wherein the molecule[[s]] comprises specific alligator clips on the source terminal and the drain terminal[[s]] which can connect to [[a]] the first previously-determined metal, and further comprises a distinct alligator clip on [[a]] the gate terminal which binds exclusively to [[a]] the second previously-determined metal.

11. (Currently amended) The method of ~~fabrication of electrical contacts for molecular electronic transistors as described in~~ claim 10, for forming at least one nanometer-scale circuit, wherein the molecule[[s]] ~~are~~ is attached to the source electrode, the drain electrode, and the gate electrode by self-assembly as a neutral species.

12. (Currently amended) The method of ~~fabrication of electrical contacts for molecular electronic transistors as described in~~ claim 10, for forming at least one nanometer-scale circuit, wherein the molecule[[s]] ~~are~~ is attached to the source electrode, the drain electrode, and the gate electrode by self-assembly as a charged species.

13. (Currently amended) The method of ~~fabrication of electrical contacts for molecular electronic transistors as described in~~ claim 1, for forming at least one nanometer-scale circuit, wherein the gate electrode is of a material selected from the group

consisting of titanium, chrome, nickel, polysilicon, silicon, aluminum, tinoxide indium, tinoxide, and gallium arsenide.

14. (Currently amended) The method of ~~fabrication of electrical contacts for molecular electronic transistors as described in~~ claim 1, for forming at least one nanometer-scale circuit, wherein the ~~source electrode is of a material~~ first previously-determined metal is selected from the group consisting of platinum, rhodium, silver, gold, and copper.

15. (Cancelled.)

16. (Currently amended) A method of forming at least one nanometer-scale circuit ~~fabrication of electrical contacts for~~ comprising a molecular electronic transistor[[s]] and electrical contacts therefor, ~~wherein~~ the method comprising:

wiring a molecule ~~is wired~~ comprising a source/drain chain and a gate chain as a transistor by distinguishing between a source / drain metallurgy and a gate metallurgy, and by providing previously-determined alligator clips which function to direct the molecule toward a proper connection,

wherein the alligator clips on the source / drain chain are –SH groups, and the alligator clip on the gate chain is a ~~phosphate group,~~ group that specifically attaches to a gate electrode, with the proviso that the alligator clip on the gate chain is not an –SH group;

providing a metal-electrode pattern ~~is provided~~ comprising a source electrode, a drain electrode, and the gate electrode on an insulating surface with a gap[[s]] in a previously-determined location[[s]] in which the molecule[[s]] belongs,

wherein the size of ~~each~~ the gap is tailored to fit a length of the molecule[[,]];

wherein the gate electrode is fabricated from ~~aluminum,~~ a metal which couples specifically to the ~~phosphate~~ alligator clip on the gate chain ~~of the molecule (gate chain)~~, and the source / drain electrodes are fabricated from ~~platinum,~~ a metal which couples to the –SH alligator clips on the corresponding chain[[,]];

immersing [[a]] the surface containing the electrode pattern ~~then immersed~~ in a solution containing the molecule[[s]], functioning to allow self-assembly to occur spontaneously[[.]] ; and

allowing the gate electrode to attach to the alligator clip on the gate chain, and the source electrode and the drain electrode to attach to the –SH group alligator clip on the corresponding source/drain chain, thereby forming the nanometer-scale circuit, wherein the circuit comprises a molecular electronic transistor and electrical contacts therefor.

17. (Currently amended) The method of ~~fabrication of electrical contacts for molecular electronic transistors as described in~~ claim 16, for forming at least one nanometer-scale circuit, wherein a molecule is prepared in a doubly-oxidized state, with two electrons missing, ~~and the electrochemistry step is that of reduction; as~~ the method further comprising applying a negative voltage ~~is applied~~, thereby causing reduction of the molecule.

18. (Currently amended) The method of ~~fabrication of electrical contacts for molecular electronic transistors as described in~~ claim 16, for forming at least one nanometer-scale circuit, ~~wherein the method utilizes photochemical oxidation, and the chip is immersed in a concentrated solution containing molecules, followed by rinsing, and~~ further comprising immersing the circuit ~~is then immersed~~ in carbon tetrachloride, and irradiat[[ed]]ing the molecule with UV radiation to photochemically oxidize the molecule to form a mixed-valence state.

19. (Currently amended) The method of ~~fabrication of electrical contacts for molecular electronic transistors as described in~~ claim 16, for forming at least one nanometer-scale circuit, ~~the molecule is provided with two -SH terminal groups functioning as alligator clips, an electrode pattern is provided on an insulating surface with gaps in locations where the molecules belong,~~ wherein the source / drain electrodes are each fabricated from a metal chosen independently from platinum, rhodium, silver, gold, and copper; and the gate electrode[[s]] ~~are~~ is fabricated from a metal chosen from titanium, chrome, nickel, polysilicon, silicon, aluminum, tinoxide indium, tinoxide, and gallium arsenide ~~the surface containing the electrode pattern is immersed in a solution containing the molecules, functioning to allow self-assembly to occur spontaneously~~.

20. (New) A method of forming at least one nanometer-scale circuit comprising a molecular electronic transistor and electrical contacts therefor, the method comprising the steps of:

wiring a three-terminal molecule to serve as a molecular electronic transistor,

the electronic transistor comprising the molecule attached to a gate electrode, a source electrode, and a drain electrode,

wherein the source electrode is fabricated from a first previously-determined metal; the gate electrode is fabricated from a second previously-determined metal; and the drain electrode is fabricated from a third previously-determined metal; and

functioning to allow for simultaneous attachment of the molecule to the source electrode, the drain electrode, and the gate electrode in a previously-determined order; and

allowing the molecule to attach to the source electrode, the drain electrode, and the gate electrode in the previously-determined order, thereby forming the nanometer-scale

circuit, wherein the circuit comprises a molecular electronic transistor and electrical contacts therefor.

21. (New) A nanometer-scale circuit comprising a molecular electronic transistor and electrical contacts therefor, produced by the method of claim 1.

22. (New) A nanometer-scale circuit arranged to function as a molecular electronic transistor, the circuit comprising:

a three terminal molecule comprising a source/drain chain having a source terminal specifically attached to a source electrode; a drain terminal specifically attached to a drain electrode; and a gate chain having a gate terminal specifically attached to a gate electrode;

wherein the source electrode and the drain electrode are fabricated from a first previously-determined metal and the gate electrode is fabricated from a second previously-determined metal.

23. (New) The nanometer-scale circuit of claim 22, wherein the three terminal molecule is a double-well potential molecule.